Governor John E. Baldacci's Task Force Promoting Safer Chemicals in Consumer Products

Interim Report

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Table of Contents

Ex	ecutive SummaryPage 4
I.	IntroductionPage 5
II.	Relevant Knowledge and Activities Related to Promoting Safer Alternatives to Priority Chemicals
III	Relevant Knowledge on Research and Development of Safer Alternatives to Priority Chemicals in Consumer Products in MainePage 11
IV	State of Maine Initiatives: Leadership by ExamplePage 12
v.	RecommendationsPage 16
VI	Next StepsPage 18
VI	I. AttachmentsPage 18
Sei	achment (A) Executive Order Promoting Safer Chemicals in Consumer Products and vices 12 FY 06/07 and Order Amending the Executive Order Promoting Safer Chemicals in Insumer Products and Services 16 FY 06/07
Att	achment (B) Task Force Promoting Safer Chemicals in Consumer Products member roster
Att	achment (C) Tom's of Maine Process for Assessing Vendor Total Value
Att	achment (D) Sample Material Safety Data Sheet (MSDS) Provided by Interface, Inc.

Executive Summary

The Governor's Task Force Promoting Safer Chemicals in Consumer Products was established to identify and promote the use and development of safer alternatives to hazardous chemicals in consumer goods and services made, provided or sold in Maine so as to benefit public health, the environment and the economy for all Maine people.

The 1976 federal Toxic Substances and Control Act (ToSCA) was intended to provide a framework for federal regulation of chemicals found to present an unreasonable risk of injury to health or the environment and to encourage industry to develop adequate data with respect to the effect of chemical substances and mixtures on health and the environment.

The Task Force Promoting Safer Chemicals in Consumer Products agrees with the U.S. Government Accountability Office (GAO) and others that ToSCA does not provide sufficient chemical safety data for public use by consumers, businesses and workers; is inadequate to ensure the safety of chemicals in commerce in the United States; and fails to create incentives to develop safer alternatives. It further fails to provide health and ecotoxicity information for Maine companies seeking information about the safety of chemicals in their products, and fails to provide information adequate to ensure worker safety.

Under ToSCA, the burden of proof requirements are so heavy that they discourage effective agency action. This means that the Environmental Protection Agency (EPA) cannot stop companies from using many chemicals the agency knows may be or are harmful. EPA's inability to act under ToSCA is a key reason Maine must move to protect its citizens and environment from toxic chemicals in consumer products.

Task Force members Tom's of Maine and Interface, Inc. represent two businesses in Maine that have developed profitable product lines that exemplify safer consumer products. Both Tom's of Maine and Interface, Inc. incorporate safer products, environmental protection and sustainability into their work practices as well as their products. Lack of comprehensive and standardized information on the toxicity and ecotoxicity of most chemicals has presented challenges for both companies.

Maine's agencies are playing a leadership role in promoting the use of safer chemicals in consumer products through the purchase and use of products that are needed in state government, commonly used by consumers and safer for our state workers and the environment. Environmentally preferable procurement is underway for janitorial supplies, lamps and ballast, computers, and wheel weights. An Integrated Pest Management program is under development for state-owned and operated buildings and their grounds in the Augusta area.

Technological innovation is key to both the development of safer alternatives to toxic chemicals and to allowing our companies to maximize the value of Maine's rich natural resource base. Green Chemistry, including the development of bio-based products from Maine agricultural and forest resources, offers the potential for substantial economic growth and job expansion in this state. This innovative technology will supply a demand that already exists from successful

Maine businesses committed to sustainable materials, processes, and products. Becoming preeminent in the field of Green Chemistry is a natural for this state and its businesses. Task Force recommendations support the expanded efforts of the University of Maine System and private industry to become leaders in the field of Green Chemistry and the emerging potential of bio-based products.

The Task Force also recommends actions to improve our knowledge base of safer chemicals among Maine's consumers and student population and to increase opportunities for higher level education in the areas of toxicology and environmental health.

I. Introduction

The Governor's Task Force to Promote Safer Chemicals in Consumer Products was created by Governor John E. Baldacci's Executive Order 12 FY 06/07 dated February 22, 2006. (full text of copy of Executive Order and Amendment to Executive Order is provided as Attachment A). The Task Force was authorized to meet over a 19 month period culminating in the submission of a final report by October 1, 2007. The Task Force is also directed to issue this Interim Report.

The 13 member Task Force includes: the commissioner, Department of Environmental Protection, who chairs the Task Force; the deputy commissioner, Department of Economic and Community Development or designee; the State Toxicologist or designee; an IPM Council Coordinator (a single position shared by the Department of Agriculture IPM Coordinator and the Cooperative Extension IPM Coordinator); three members from the environmental public health community including a representative from the Alliance for a Clean and Healthy Maine, a Maine environmental policy organization and a Maine public health organization; three members of the business community including a representative from a Maine manufacturer that practices environmentally sustainable production, a Maine business association and one other Maine business; one representative from a University in the University of Maine system who is involved in research and development; one representative of a Maine labor organization; and a public member (member roster is provided as Attachment B).

The Task Force was established to identify and promote the use and development of safer alternatives to hazardous chemicals in consumer goods and services made, provided or sold in Maine so as to benefit public health, the environment and the economy for all Maine people. Specifically, the Task Force was charged with the following four duties:

- i. Survey relevant knowledge and activities related to promoting safer alternatives to priority chemicals in the areas of environmental public health policy development, green chemistry research and development, and economic incentives;
- ii. Develop recommendations for a more comprehensive chemicals policy that requires safer substitutes to priority chemicals in consumer products and creates incentives to develop safer alternatives, on a state and regional basis;

- iii. Develop recommendations on expanded consumer education, retailer education and training, supply chain information and public right-to-know in order to promote markets for safer alternatives;
- iv. Develop recommendations for submission to the Maine Science and Technology Advisory Council on expanded research and development of safer alternatives to priority chemicals in consumer products, including investment in green chemistry research and development and the possibility of developing bio-based plastics from Maine-based agricultural and forest products.

This Interim Report will primarily address duties i.and iv. above.

II. Relevant Knowledge and Activities Related to Promoting Safer Alternatives to Priority Chemicals

a. Gaps in the current federal chemical safety system

The Task Force reviewed the current system of federal regulation of chemicals in commerce under the Toxic Substances Control Act (ToSCA), 15 U.S.C. secs. 2601 et seq. ¹ This regulatory framework has been described in an environmental law textbook as "perhaps the most complex, confusing, and ineffective of all of our federal environmental protection statutes." ²

ToSCA's passage in 1976 was intended to provide a framework for federal regulation of chemicals found to present "an unreasonable risk of injury to health or the environment," and to encourage industry to develop adequate data with "respect to the effect of chemical substances and mixtures on health and the environment." ToSCA has, however, fallen far short of its objectives.

As further described below, ToSCA creates a "Catch 22": the EPA has to already *have* data in order to require testing to *develop* data to determine the safety of chemicals. There is no requirement, however, that these data be generated. ToSCA provides penalties against manufacturers for failure to disclose information regarding toxicity, but not for failure to gather it. Very little information exists regarding the toxicity or ecotoxicity of the majority of chemicals in commerce.

With the exception of one class of chemicals (PCB's) of particular concern at the time ToSCA was enacted, ToSCA does not require the EPA to review the risks of existing chemicals in commerce. The EPA has the discretionary authority to issue "testing orders" to manufacturers, but only after the EPA has met the significant burden of finding "substantial evidence" that the chemical may present an "unreasonable risk." Over the 30 years since ToSCA was enacted, EPA has issued testing orders for fewer than 200 of the 62,000 chemicals that were in production in 1979. In 1994, the GAO found that the EPA had managed to review the risks of about 1,200 (2%) of the 62,000 "existing chemicals." The EPA reported, however, that about 16,000 (26%) of these chemicals were potentially of concern on account of their production volume and chemical design. This body of 1979 existing chemicals "continues to constitute the great

majority of chemicals in commercial circulation in the U.S. (by volume), many of which have reached high levels of use despite very little information about their toxicity or ecotoxicity." ⁴

While the EPA's record of reviewing *new* chemicals developed since 1979 is somewhat better, there is similarly no requirement in ToSCA that these new chemicals be tested for safety. ToSCA simply requires that manufacturers submit Pre-market Notifications (PMNs) to the EPA, to which the EPA must normally respond within 90 days. Only half of PMNs submitted under ToSCA contain any toxicity information, and less than 20% include data on long-term toxicity. The EPA has acknowledged that 85% of PMNs lack data on chemical health effects, and 67% lack health or environmental data. The "Catch-22" that providing any data suggestive of toxicity issues might lead to an EPA testing order has led some environmental lawyers to conclude that testing one's new chemical under ToSCA is "like volunteering for an IRS audit. Even where data exist demonstrating the need for regulation of a specific chemical, substantial regulatory hurdles result in few regulatory actions. Understandably, no one does." Noting that approximately 2000 new chemicals enter the market each year, the 2006 California Policy Research Center 2006 Framework for Leadership in Chemicals Policy and Innovation report (hereinafter California Report) observed that "[t]he result is an enormous lack of information on the toxicity and ecotoxicity of chemicals in commercial circulation."

Since ToSCA's enactment in 1976, the EPA has only taken final regulatory action restricting the use of five chemicals or classes of chemicals (PCBs, CFCs, dioxins, asbestos, and hexavalent chromium), and the EPA has banned no chemical in the last 16 years. The EPA's regulation of asbestos, promulgated after the agency spent ten years gathering evidence, was overturned by the federal court because the EPA failed to meet its burden of proof under ToSCA. Unlike other major environmental statutes, regulatory action under ToSCA must be predicated upon an analysis of the economic consequences of the action "after consideration of the effect on the national economy, small business, technological innovation, the environment and public health." Additionally, before the EPA can ban a chemical, it must conduct a full risk analysis of the costs and benefits of all less burdensome regulatory alternatives, demonstrating that the risk presented by these alternatives is unacceptable; it must also conduct an analysis of the risks of all substitute chemicals for the banned product. These hurdles act as an effective roadblock to most agency action.

This task force concurs with the findings of the California Report that the regulatory inadequacies of ToSCA at the federal level "have created a broad set of problems for public and environmental health, industry, business and government in California." These problems are summarized into three gaps in the ToSCA regulatory framework: a "Data Gap," making it "very difficult even for large firms to identify hazardous materials in their supply chains;"

DATA GAP

Lack of comprehensive and standardized information on the toxicity and ecotoxicity of most chemicals

a "Safety Gap," meaning that government agencies "do not have the information they need to systematically identify and prioritize chemical hazards, nor the legal tools to efficiently mitigate known hazards;" and a "Technology Gap," meaning that the lack of both market and regulatory drivers "has dampened motivation on the part of U.S. chemical producers and entrepreneurs to invest in new green chemistry technologies."

SAFETY GAP

Government agencies do not have the information they need to systematically prioritize chemical hazards nor the legal tools to efficiently mitigate known hazards

TECHNOLOGY GAP

Lack of both market and regulatory drivers to motivate US chemical producers and entrepreneurs to develop green chemistry technologies

b. Impact on Maine businesses.

The Task Force received information from Tom's of Maine¹¹, and Interface, Inc¹², both describing the challenges facing Maine companies seeking to ensure the safety of the chemicals in their products. These are primarily due to the "Data Gap" and the "Technology Gap" described above.

Natural personal care is a concept under which products are made without artificial or animal ingredients or chemicals. Tom's of Maine has been at the forefront of this innovation in personal care products since its founding in 1970 in Kennebunk, Maine. The company mission calls for them to be distinctive in products and policies that honor and sustain our natural world. One of the ways Tom's accomplishes this is by following a very strict and explicit set of guidelines related to every aspect of product creation and the production cycle. Tom's calls this set of guidelines their Stewardship Model.

As there are no formal regulations or even guidelines within the industry that represents Tom's Stewardship Model, the company created its own internal "process for assessing vendor total value" (Attachment C) to qualify potential suppliers. The time and cost associated with this added evaluation is a direct result of the "data gap" that exists for companies looking to create effective products from plants and minerals instead of artificial chemicals.

Interface, Inc. is a world-wide manufacturer of modular carpet and fabric for commercial interiors, with 15 manufacturing facilities including 3 facilities located in Maine. The company goal is to become a sustainable business by the year 2020. Twelve years ago, the company began implementation of a chemical management system and has since developed extensive experience in chemical assessment and safer chemical substitutions. In doing so, Interface, Inc. has had first hand experience with the impacts of the chemical "Data Gap". The Material Safety Data Sheet (MSDS) on which companies rely to provide information on the raw materials they purchase are often inaccurate, incomplete, and out of date (see sample MSDS demonstrating these concerns Attachment D). To get information that is not available on the MSDS, the company has to negotiate and implement confidentiality agreements vendor by vendor, before chemical assessments can be completed. As a result, development of safer products takes an extensive amount of time, which translates to labor costs and delays in the introduction of safer products. Furthermore although market drivers are beginning to improve, the research on safer alternatives to the existing chemicals in the marketplace has not kept pace. Therefore, when concerns are identified for certain chemical classes, the company has to invest time and money to conduct its own research to develop safer alternatives.

c. Impact on Maine workers.

The Task Force heard a presentation by Mark Catlin¹³, on chemicals in the workplace that similarly identified problems associated with the "data gap". Mr. Catlin is engaged in training workers throughout the US on hazardous materials issues. Substitution of a safer chemical is the first step in the OSHA hierarchy of responses to workplace toxic chemicals. When there is a lack of available information to identify safer chemicals then less effective controls such as engineering controls and personal protective equipment will need to be used. Of the 500 chemicals that OSHA has identified as of concern in workplaces, it has updated and improved standards for only 30. The remaining standards are those proposed by industry in the mid to late 1960s, based on outdated science from the early to mid 1960s. Mr. Catlin noted that information about the long term chronic toxicity of chemicals in the workplace is significantly lacking in comparison with information about acute toxicity. He indicated that the estimates reported in the California Report regarding the extent of chronic disease in California attributable to workplace exposure¹⁴ are "reasonable," and that such illnesses and deaths are significantly under reported.

d. <u>Current activities in states and Europe related to chemical policy reform and promoting safer</u> alternatives to priority chemicals.

The Task Force heard a presentation by Ken Geiser, PhD, on directions toward new chemical policies. ¹⁵

Strategy for chemicals management has evolved from a historic reliance on disposal and dilution, to waste treatment and pollution control requirements, and then adoption of toxics policy (or chemical by chemical regulation). The focus is now on chemical systems and product design. Chemicals policy is defined as management policies by government or corporations that focus on the informed selection and sound use of all chemicals. Chemicals policy is hazard-based rather than exposure-based, meaning that it's driven primarily by the inherent properties of chemicals rather than by estimations of exposure and risk. Chemicals policy is intended to transition chemical use from high hazard substances to lower hazard substances, and to promote research and innovation in chemical markets.¹⁶

With respect to current chemicals policy development in the United States, there is little initiative at the federal level. However, there are discussions underway on chemicals policies in several states including California, Maine, Massachusetts, Michigan and Washington.

From 1989 to 1994, six states passed Toxics Use Reduction Acts (TURA) including Massachusetts, which was the first, and Maine. The Massachusetts law focused on about 190 chemicals and involved more than 1,000 industrial firms. Through mandatory planning requirements, training and technical assistance, the TURA program resulted in significant reductions in toxic chemical use, waste and emissions and helped firms improve efficiencies and save money.¹⁷

The Massachusetts legislature is now working on broader chemicals policy reform that would expand the TURA focus to include safer substitutes for commercial products. A step in this broader chemicals policy reform was a legislative mandate to study alternatives to five high priority chemicals: lead, perchloroethylene ('perc', used in drycleaning), formaldehyde, di(2-ethylhexyl) phthalate (DEHP, a softener added to PVC plastic) and hexavalent chromium. This "Five Chemicals Study" was recently completed. For each chemical, it identifies uses, identifies alternatives, prioritizes alternatives and evaluates alternatives based on performance, cost, health and environment. The report concluded that "[I]n every case, at least one alternative was identified that was commercially available, was likely to meet technical requirements of many users, and was likely to have reduced environmental and occupational health and safety impacts compared with the base chemical." ¹⁸

There are several new directions in international chemicals policy, including new European chemicals policies that outpace federal policy action in the United States. The most significant chemicals policy development is the European Union directive known as REACH (for Registration, Evaluation and Authorization of Chemicals). ¹⁹

REACH, will to enter into force on June 1, 2007²⁰, and will overhaul European chemicals policy and affect about 30,000 industrial chemicals. Its development over the last six years has been followed closely in the United States since it will affect exports into the European market and

because it models a modern, systems approach to more effective management of all new and existing chemicals. REACH has four major parts:

Pre-Registration. As a preparatory step, within 18 months after passage of REACH, all manufacturers or importers of chemicals in amounts greater than 1 ton per year (about 30,000 substances) must submit simple technical information on their chemicals to the new European Chemicals Agency.

Registration. Chemical producers and importers must formally register their chemicals and submit specific chemical safety data if manufactured or imported at greater than 10 tons per year. The registration process will be phased in over three years, six years and eleven years. This will close the data gap for larger volume chemicals.

Evaluation. This is essentially a compliance and risk screening process. Chemical safety reports will be scrutinized and additional information can be required. If risks are not adequately controlled, then the restrictions process may be used.

Authorization. This is essentially a ban on chemicals of very high concern with exemptions allowed for specific uses. Once a chemical is selected, a date is set when use will be phased-out. Users who wish to continue use (including in products) must apply for authorization. This presumptive ban will apply to known and probable carcinogens, mutagens and reproductive toxins (CMRs 1&2); persistent bioaccumulative and toxic chemicals (PBTs), very persistent and very bioaccumulative chemicals (vPvBs), and substances of equivalent concern.

Under REACH, a new European Chemicals Agency will be established in Helsinki, Finland, to manage the chemicals database, evaluate chemical submissions and conduct assessments in support of authorizations and restrictions. Member states will provide staff experts, handle enforcement and share information.²¹

The other significant international chemicals policy development is the United Nations SAICM – Strategic Approach to International Chemicals Management. The Dubai Declaration signed in February 2006 establishes a network of countries with a commitment to the overall goal "[T]o achieve the sound management of chemicals throughout their life-cycle so that, by 2020, chemicals are used and produced in ways that lead to the minimization of significant adverse effects on human health and the environment." A Global Plan of Action will be developed, with assistance provided to developing countries.

III. Relevant Knowledge on Research and Development of Safer Alternatives to Priority Chemicals in Consumer Products in Maine

Among the primary concerns with the presence of toxic chemicals in consumer products and the environment is the lack of knowledge regarding the toxic properties of the raw materials used in consumer products and the lack of knowledge regarding the eventual degradation products and by-products which may be created in the manufacture of these products. The lack of knowledge comes from the lack, or inadequacy, of evaluation and testing. Additional factors are the lack of an adequate federal chemicals use policy and a regulatory framework to require testing,

environmental fate analysis and safer alternatives analysis for existing and new chemicals. The reduction or elimination of toxic chemicals in consumer products can only be achieved after careful analysis of the raw materials used in these products and the identification of safer substitutes. A new approach to the design and manufacture of safer products incorporating principles of pollution prevention, design for energy efficiency, use of renewable feedstocks, and design for degradation, is referred to as "Green Chemistry". ²²

GREEN CHEMISTRY

design of chemical products and processes that reduce or eliminate the use and generation of hazardous substances (Anastas et al. 2000).

Maine is at the cutting edge of this new approach. The University of Maine is a charter member of the New England Green Chemistry Consortium, which consists of the land-grant universities in New England and which hosted the annual meeting of the Consortium in Orono in June 2006. The University of Maine has taken the lead in trying to promote bio-based raw materials from the forest products sector that could be used in the production of safer bio-based products. A recent industry initiative by InterfaceFABRIC, in partnership with the Alliance for a Clean and Healthy Maine and the University of Maine, has expanded the bio-based products effort to look at the potential of using Maine potatoes and other agricultural products to supply the feedstock for bio-based plastics. The background for this initiative and a Seed Grant Proposal submitted to the Maine Technology Institute was provided to the Task Force by Stacie Beyer, Corporate Environmental Manager for Interface, Inc.

The bio-based products initiative is being driven by a market demand for less toxic bio-based products and the business effort to respond to new market demand for safer products. There are a significant number of Maine companies interested in using or investigating "Green Chemistry" to identify new less toxic raw materials to use in their products. InterfaceFABRIC has already switched from a petroleum based plastic to a biodegradable, compostable, natural corn based PLA (polylactic acid) for use in the production of some fabrics. The goal of this initiative is to find or help create a source of PLA derived from Maine potatoes or other agricultural products.

Maine has one of the country's highest levels of research activity by non-profits, but the Research and Development activity by private industry is below average. Innovation (R&D&Commercialization activity) by Maine industry and businesses is critical to Maine's economic success. One of Maine's natural niches is utilization of its rich natural resource base. Continuing and expanding the work of the University of Maine and University of Southern Maine in Green Chemistry and toxicology is vital to any potential development of in-state manufacturing of innovative less toxic bio-based products

IV. State of Maine Initiatives: Leadership by Example

Environmentally Preferable Procurement

The practice of environmentally preferable procurement has had a strong history under Maine's State government through its Bureau of General Services, Division of Purchases. For several years green procurement strategies have been utilized for acquiring Energy Star® rated equipment and appliances, paper and printing supplies, highway paint, retreaded tires and numerous other products.

With adoption of an Environmentally Preferable Procurement Policy in 2004 the Division of Purchases pledged "to purchase products and contracts for services that have a reduced negative impact on human health and the natural environment in comparison to other products and service that serve similar purposes." Under the policy, the Division has undertaken several initiatives in coordination with other agencies. These initiatives include the adoption of Leadership in Energy and Environmental Design standards for Existing buildings (LEED-EB) and new construction, the procurement of "green" lamps and ballasts, the adoption of Electronic Product Environmental Assessment Tool (EPEAT©) standards for acquiring computer related equipment, procurement of lead free wheel weights and green chemical procurement.

Environmentally Preferable Procurement for Janitorial Products

In July of 2005, the Maine Board of Pesticides Control in the Department of Agriculture, in concert with Division of Purchases, the Property Management Division, and the Department of Environmental Protection established an interagency committee to evaluate the purchase and use of "safer" cleaners and disinfectants. The scope of this committee was expanded to include "cradle to grave" product characteristics with the issuance of the Executive Order 12 FY 06/07, An Order Promoting Safer Chemicals in Consumer Products and Services to create improved specifications for the procurement of "green" janitorial products. Subsequently the chairmanship shifted to the Bureau of General Services. Additionally, Paragraph 2 of EO 8 FY 04/05 requires that existing state buildings shall incorporate the LEED-EB standards. Section MR, Credit 4 or of the LEED-EB standards requires that cleaners meet the Green Seal GS-37 standard. Thus, guidelines created by the committee are two pronged in their approach to addressing the use of safer chemicals. For cleaners, future products must qualify as meeting the criteria set forth in the Green Seal Environmental Standard for Industrial and Institutional Cleaners GS-37 or must be certified by an independent accredited laboratory as qualifying under GS-37 criteria. Disinfectants must meet the Maine specifications developed using criteria based on the Battelle Pacific Northwest Laboratories standards and the expertise of committee members. One major objective of this program is to identify "safer" products that also work effectively.

To promote environmental and human health and welfare throughout the state, the new "green" janitorial products specifications will allow municipal, county and regional government subdivisions an opportunity to integrate their own purchasing needs into the State's Request for Quotations (RFQ). Extending this opportunity to other government sectors will create opportunity for expanded environmentally preferable purchasing at all levels of government.

Currently, the Division of Purchases is in the process of issuing a RFQ for the procurement of green chemical products and will be attaching the new specifications for vendors to incorporate into their bids. Ensuring high standards for environmental and occupational health and safety as

well as economic feasibility is of the foremost importance under the new specifications. Interested parties are encouraged to provide feedback on the new specifications, and their comments and suggestions will be considered as implementation of the specifications continues.

In the early 1990's, the Services Employees International Union (national affiliate of the Maine State Employees Association) created a non-profit employee Hazard Materials Awareness Training Program using a small group peer training format. The training continues to occur annually at Maine Department of Transportation and has also been conducted with Bureau of General Services custodial staff. The program has trained more employees in Maine than in any other state for three years running and this exemplary effort has been recognized through awards. At a recent presentation to the Task Force, the SEIU non-profit Hazard Materials Awareness training program offered those services once more to the state to assist with training employees on new janitorial products.

Environmentally Preferable Procurement Lamps and Ballast

The Division of purchases and Department of Environmental Protection are developing a new Electrical Lamps and Ballasts Request for Quotations (RFQ). The intent is to purchase products that in comparison to other products have a reduced impact on human health and the natural environment balancing price, performance, availability and safety.

In order to reduce mercury content the Division of Purchases has incorporated standards developed by the United States Green Building Council's Leadership in Energy and Environmental Design with regard to operation and maintenance of Existing Buildings (LEED-EB). Respondents to the RFQ must document the mercury content of all mercury containing light bulbs included in their bid. Vendors will also provide assistance to building managers to ensure conformance with LEED-EB standards.²⁵

Environmentally Preferable Procurement Lead Free Wheel Weights

Traditional wheel weights for tire balancing have been made primarily of lead. A 2000 study²⁶ indicates that approximately 10% of the weights fall off annually, degrade in the environment and contribute both to levels of lead in storm water runoff that is toxic to some aquatic organisms and to ambient lead dust in the urban environment. U.S. Geological Survey estimates lead in wheel weights lost on US roadways at 2000 tons annually and "because lead wheel weights have been used on vehicles for about 70 years, the cumulative amount of contained lead dispersed may be significant."²⁷

Use of lead wheel weights was banned in the European Union in July 2005. Ann Arbor, Michigan and the State of Minnesota are replacing lead wheel weights with non-lead weights. Since July 2006, pursuant to Governor Baldacci's Executive order existing lead wheel weights on passenger vehicles and light duty trucks serviced in state agency garages in Maine have been replaced with covered steel wheel weights.

This change out of lead wheel weights occurs during routine tire maintenance, and the transition is going smoothly. The only obstacle identified to date is a limited number of vehicle models (less than 2%) with rim designs that do not accept the wheel weight tab attachment. (Alternative design wheel weights are being investigated.) Once this challenge is solved, state agencies will

request the use of the non-lead alternative wheel weights on passenger and light duty trucks serviced by more than 350 independent auto facilities.

Integrated Pest Management

Pests and pesticides can pose a significant risk to people, property and the environment. A number of well-documented studies have demonstrated the strong link between uncontrolled pest populations and risks to human health²⁸ ²⁹ ³⁰. These risks include increased rates of asthma and infant mortality³¹ ³² and risk of exposure to infectious diseases such as *Salmonella enteriditis* ³³, West Nile virus³⁴, Lyme disease ³⁵ and hantavirus hemorrhagic fever ³⁶. Likewise, pesticide use and exposure can also pose risks to both humans ³⁷ ³⁸ ³⁹ ⁴⁰ ⁴¹ and the environment ⁴². Pesticides have been documented to be pervasively distributed throughout our urban, rural and even pristine natural environments, persisting in some cases for decades after their use. ⁴³ Integrated Pest Management (IPM) is a widely-accepted approach to minimizing all risks associated with pests and pesticides. IPM offers the best means of ensuring our homes, workplaces and environment are safe, healthy, and productive. IPM minimizes risks of property-damage and other economic losses. Studies have shown that IPM practices significantly reduce pesticide exposure risk and improve health ⁴⁴

Integrated Pest Management (IPM) is a widely-accepted approach to minimizing risks associated with pests and pesticides by understanding the system in which the pest exists; by establishing economic or aesthetic injury thresholds and determining whether the organism warrants control; by monitoring pests and natural enemies; by selecting the appropriate system of cultural, mechanical, genetic, biological or chemical prevention or control techniques; by evaluating the pest management approaches used and by selecting, integrating and implementing some or all of these methods. 45 46

Although IPM practices are well recognized by agricultural producers and pest control professionals, the general public and retailers are not familiar with the concepts and benefits.

State of Maine Property Management Division IPM Policy

In keeping with the spirit of 'leading by example' and as directed by Governor Baldacci's Executive Order, the Bureau of General Services (BGS), in consultation with the Maine Department of Agriculture, drafted an IPM Policy and a Request for Proposals for IPM service bids. As directed by the Executive Order, the Maine IPM Council was asked to evaluate the feasibility of requiring that State of Maine pest management contractors be IPM-certified. The IPM Council determined that such a requirement is feasible for structural pest control contractors and made a formal recommendation to DAFS that priority be given to IPM-certified contractors.

IPM policy documents, applicable to office buildings and grounds under the control of BGS Property Management Division (PMD), are currently undergoing final review by Department of Administrative and Financial Services. It is intended that the IPM Policy and the IPM RFP will be implemented upon approval and will serve to establish a formal IPM program for PMD-managed properties. Key elements of the IPM Policy include 1) appointment of an IPM Coordinator to oversee the program; 2) assignment of a Building Coordinator to serve as a communication link between occupants, and the IPM Coordinator; 3) IPM training for PMD

staff, and 4) establishment of a record-keeping system for tracking pest management actions and evaluating program effectiveness.

V. Recommendations

Recommendations on expanded consumer and retailer education to promote markets for safer alternatives

A key strategy to achieve lasting improvements in public understanding of the risks involved in use of and exposure to chemicals and thus encouraging the use of safer chemicals is education. Currently, there is limited work and education concerning toxicology and environmental health in Maine.

- 1. Provide general education through a website and educational materials that provide some guidance and education on safer chemicals and include an outreach campaign to guide the public seeking such information to such materials.
- 2. Educational resources developed for the Maine School IPM Program and the State's BGS IPM Policy should be promoted as adaptable models for implementation of IPM on other public and private properties including municipalities, hospitals, colleges, multiple family residences, and commercial properties.
- 3. Increase support for public and retailer pest management and pesticide education.
- 4. Increase graduate level education in toxicology and environmental health by dedicating 1-2 fellowships in the Graduate School of Biomedical Sciences to the newly formed Toxicology and Environmental Health track in that program.
- 5. Increase undergraduate level education in toxicology and environmental health by providing funding for faculty hires to expand the "Toxicology and Environmental Health" minor at USM to an undergraduate major that students can specialize in.
- 6. Investigate appropriateness of access to K-12 curriculums in alignment with the Maine Learning results focused on Toxicology and environmental health and Integrated Pest Management.

Recommendations to support efforts to enhance current state initiatives

Environmental Preferable Procurement for Janitorial Products

7. Accept the offer of the SEIU Hazard Materials Awareness Training Program to conduct Hazard Materials Awareness training on janitorial products. The program would train Bureau of General Services staff on new janitorial supplies that will be purchased through the evolving Environmentally Preferable Procurement contract for Janitorial Supplies. This would enhance efforts of BGS janitorial staff to safely use the new janitorial products being introduced through Environmentally Preferable Procurement.

Integrated Pest Management

- 8. In order to fully implement the State of Maine IPM Policy, BGS would require additional resources beyond those currently available. The Task Force recommends that those resources be made available to BGS so that the policy can be as effective and functional as possible.
- 9. In order to fully implement the necessary IPM system, BGS would require additional resources beyond those currently available. The Task Force recommends that the necessary support and resources be made available to implement an effective record-keeping system to track pesticide use, pest monitoring records, IPM actions, and pest and pesticide-related complaints in state facilities.

Recommendations the Task Force will submit to the Maine Science and Technology Advisory Council [Executive Order Task Force duty IV.b.iv.]

Technological innovation is key to both the development of safer alternatives to toxic chemicals, and to allowing our companies to maximize the value of Maine's rich natural resource base. Green Chemistry, including the development of bio-based products from Maine agricultural and forest resources, offers the potential for economic growth and job expansion in this state. This innovative technology will supply a demand that already exists from successful Maine businesses committed to sustainable materials, processes, and products. Becoming preeminent in the field of Green Chemistry is a natural for this State and its businesses. To this end, the Task Force recommends that the State and the Maine Science and Technology Advisory Council support the expanded efforts of the University of Maine System and private industry to become leaders in the field of Green Chemistry and the emerging potential of bio-based products. This support should include, but is not limited to:

- 10. Support the creation within the University of Maine System of a Green Chemistry Program for Sustainable Production (GCPSP) coordinated between the University of Maine, Orono and the University of Southern Maine.
- 11. As part of the GCPSP, support the construction and funding of a Bio-Based Plastics Research and Processing Facility directed by the Chemical Engineering Department of the University of Maine, Orono. Such facility will provide research capacity in the areas of feedstock fermentation and polymerization, for applications based on industry needs in the areas of bioplastic fibers, injection molding, building materials, and coatings and paints.
- 12. As part of the GCPSP, support the completion of construction and funding of the Maine Center for Technology and Environmental Health Facility at the University of Southern Maine, to provide expertise in toxicology and Green Chemistry research, and creation of a database of chemicals use and safer alternatives to support State policy efforts and provide technical assistance to industry.
- 13. Support the initial stages of creation of a PLA (polylactic acid) manufacturing facility in Aroostook County which would produce bio-based plastic building blocks from potatoes and other agricultural crops and potentially forest byproducts.

14. Increase the amount of research funding in the Maine Economic Incentive Fund (MEIF), which will allow for an increase to focus on research in Toxicology and Environmental Health and Green Chemistry.

VI. Next Steps

Next steps for the Task Force will include:

- Executive Order duty IV.b.ii.: to develop recommendations for a more comprehensive chemicals policy that requires safer substitutes to priority chemicals in consumer products and creates incentives to develop safer alternatives, on a state and regional basis; and
- Executive Order duty IV.b.iii.: to develop recommendations on expanded consumer education, retailer education and training, supply chain information and public right-to-know in order to promote markets for safer alternatives and
- Environmental health impacts from lack of chemical information.

VII. Attachments

Attachment (A) Executive Order Promoting Safer Chemicals in Consumer Products and Services 12 FY 06/07 and Order Amending the Executive Order Promoting Safer Chemicals in Consumer Products and Services 16 FY 06/07

Attachment (B) Task Force Promoting Safer Chemicals in Consumer Products and services Member roster

Attachment (C) Tom's of Maine Process for Assessing Vendor Total Value

Attachment (D) Sample Material Safety Data Sheet (MSDS) Provided by Interface, Inc.

United States Government Accountability Office. Chemical Regulation: Approaches in the United States, Canada, and the European Union (GAO-06-217R). Washington, D.C.: U.S. Government Printing Office, 2005. [hereinafter, GAO, 2005].

Wilson, M, Green Chemistry in California: A Framework for Leadership in Chemicals Policy and Innovation. California Policy Research Center, 2006. [hereinafter, "Cal. Report"]. Center for International Environmental Law. Cloudy Skies, Chance of Sun: A Forecast for U.S. Reform of Chemical Policy, 2006

ToSCA is not the only federal statute concerned with chemical safety, but, with respect to chemicals in consumer products, it is the primary federal regulatory mechanism. Chemicals classified as pesticides are separately regulated under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) which, unlike ToSCA, requires testing, review, and registration of pesticides before they are marketed. Pharmaceuticals are also separately regulated under the Federal Food, Drug, and Cosmetic Act, which also requires pre-market testing. Other federal and state laws that pertain to toxic chemicals are essentially "end-of-pipe" statutes that do not allow review of chemicals prior to their introduction into commerce, and regulate a relatively narrow range of chemicals. See Cal Report. p.20-21

¹ Documents reviewed included:

² Plater Z., Abrams, R, Goldfarb, R. Environmental Law and Policy: Nature, Law, and Society, 3rd Edition. New York: Aspen Publishers, 2004. [hereinafter "Plater"] p. 830.

³ GAO, 2005, p. 2; Cal. Report, p. 17.

⁴ Cal. Report, p. 17.

⁵ Plater, p. 837; see also GAO, 2005, p. 5, comparing Canada and EU law.

⁶ Cal. Report, p. 19.

⁷ Roe D., Pease, W. Toxic Ignorance. In: The Environmental Forum. May/June 1998; 28.

⁸ Cal. Report, p. 19.

- ⁹ Corrosion Proof Fittings v. USEPA. 947F. 2d 1201 (5th Cir. 1991); Cal. Report, p.18; Plater, p.840
- ¹⁰ Cal. Report, p. xiv.
- ¹¹ Task Force member Mark Dobrovolny, Director of Product Supply for Tom's of Maine
- ¹² Task Force member Stacie Beyer Corporate Environmental Manager for Interface, Inc.
- ¹³ Mark Catlin Industrial Hygienist and Haz Mat Project Coordinator for the Service Employees International Union (SEIU) Education and Support Fund. Mr. Catlin is engaged in training worker throughout the use on Hazardous Materials issues.
- ¹⁴ "Each year, about 23,000 Californians are diagnosed with a preventable, deadly chronic disease that is attributable to chemical exposures in the workplace...About 6,500 Californians die each year as a result of chronic disease attributable to chemical exposures in the workplace." Cal. Report, p. 33. Similar estimates are not available for Maine
- ¹⁵Ken Geiser, PhD is Co-Director of the Lowell Center for Sustainable Production at the University of Massachusetts, Associate Professor in the Department of Work Environment and was the founding director and current Advisory Board chair of the Toxics Use Reduction Institute at U.Mass. Lowell. Dr. Geiser is the author of Materials Policy which sketches the history of materials use and the pathway for increased reliance on nontoxic environmentally sustainable materials.
 ¹⁶ Ken Geiser, PhD Lowell Center for Sustainable Production, September 29 2006 presentation to the Task Force.
- Ken Geiser, PhD Lowell Center for Sustainable Production, September 29 2006 presentation to the Task Force. The From 1990-2004, under the Massachusetts TURA program, toxic chemical use declined by 41%, toxic byproducts (waste) was reduced by 65% and toxic chemicals shipped in products went down by 58%. Among businesses affected by the Massachusetts TURA, 70% of firms identified toxics use reduction options and 81% of those reported implementing at least some of them. Two-thirds of firms reported cost savings and health & safety benefits. From 1990-1997 the reported costs of the program were \$77 million and the monetized benefits were \$91 million (not including benefits to human health, ecology and non-TURA firms).
- ¹⁸ Toxics Use Reduction Institute, University of Massachusetts Lowell, Five Chemicals Alternatives Assessment Study, June 2006, www.turi.org.
- ¹⁹ The new international chemicals policies include the UN Rotterdam Convention on Prior Informed Consent, UN Stockholm Convention on the Elimination of Persistent Organic Pollutants (POPs), IOMC's "Globally Harmonized System of Classification and Labeling of Hazardous Chemicals" (GHS), and the United Nations Environment Program's SAICM (Strategic Approach to International Chemicals Management). Other new European Union (EU) chemicals policies in addition to REACH are the End of Life Vehicle Directive, Waste from Electronic and Electrical Equipment (WEEE) Directive and the Restriction on Hazardous Substances (RoHS) Directive.
- ²⁰ European Commission REACH website http://ec.europa.eu/environment/chemicals/reach/reach_intro.htm
 ²¹ European Commission REACH website http://ec.europa.eu/environment/chemicals/reach/reach_intro.htm
- http://www.chemicalspolicy.org/, which includes comprehensive resources on REACH and related chemicals policy initiatives.

 22 See the University of Massachusetts at Lowell's Center for Green Chemistry,
- 22 See the University of Massachusetts at Lowell's Center for Green Chemistry, http://www.greenchemistry.uml.edu/html/ClickablePrinciplesproject_files/frame.htm, for an expression of the Twelve Principles of Green Chemistry.
- ²³Presentation by Michael Bilodeau, Associate Director of Forest Bioproducts Research and Director of the Process Development Center at University of Maine at Orono.
- ²⁴ Presentation on initiative and a Seed Grant Proposal submitted to the Maine Technology Institute by Stacie Beyer, Corporate Environmental Manager for Interface, Inc.
- ²⁵ Vendors must also meet the following energy efficiency guidelines: lighting, wherever possible, must meet Energy Star lower energy consumption standards; vendors must ship all products with the Energy Star low-power feature activated or enabled; if the product is shipped without the Energy Star low-power feature activated or enabled or without the Energy Star seal, it must include the manufacturer's certification specifying the product is Energy Star compliant.
- ²⁶ Robert A. Root 2004 Lead Loading of Urban Streets by Motor Vehicle Wheel Weights
- ²⁷ USGS Stocks and Flows of Lead-Based Wheel Weights in the United States Open-File Report 2006-1111.
- ²⁸ Platts-Mills, T.A.E. 1994. How environment affects patients with allergic disease: indoor allergens and asthma. Ann Allergy 72: 381-384.
- Perera FP, et al. 2003. Effects of transplacental exposure to environmental pollutants on birth outcomes in a multiethnic population. Environ Health Perspect., 111:201–206.
 Schal, C. and R.L. Hamilton, 1990. Integrated suppression of synanthropic cockroaches. Ann. Rev. Entomol. V.
- ³⁰ Schal, C. and R.L. Hamilton, 1990. Integrated suppression of synanthropic cockroaches. Ann. Rev. Entomol. V. 35: 521-551

³¹ Rosenstreich DL, Eggleston P, Kattan M, Baker D, Slavin RG, Gergen P, et al. The role of cockroach allergy and exposure to cockroach allergen in causing morbidity among inner-city children with asthma. N Engl J Med. 1997;336:1356–1363.

³² Sporik, R., et. al. 1990. Exposure to house-dust mite allergen (Der p I) and the development of asthma in childhood. A prospective Study. N Engl. J med 323: 502-507.

³³ Ash, N., and B. Greenburg. 1980. Vector potential of the German cockroach in dissemination of Salmonella enteritidis serotype typhimurium. J. Med. Entomol. 17: 417-23.

³⁴ Michael J. Turell, Monica L. O'Guinn, David J. Dohm, James W. Jones. 2001. Vector Competence of North American Mosquitoes (Diptera: Culicidae) for West Nile Virus. Journal of Medical Entomology 38:130-134

35 Steere, Allen, C. 1991. Lyme Disease. NE J Med Volume 345:115-125

³⁶ Childs, J. E. et al. 1994. Serologic and genetic identification of Peromyscus maniculatus as the primary rodent reservoir for a new hantavirus in the southwestern United States. J. Infect. Disease. 169(6):1271-80

³⁷ Whitemore, R.W., et al. 1994. Non-occupational exposures to pesticides for residents of two US cities. Arch. Environ. Contam Toxicol 26: 47-59.

³⁸ Whyatt R. M., et al. Residential pesticide use during pregnancy among a cohort of urban minority women. Environ Health Perspect. 2002;110:507–514.

³⁹ Perera F. P., et al. 2003. Effects of transplacental exposure to environmental pollutants on birth outcomes in a multiethnic population. Environ Health Perspect., 111:201–206.

⁴⁰ Michael C. R.,, et. al.. 2003. Use of agricultural pesticides and prostate cancer risk in the agricultural health study cohort. Am J Epidemiol.; 157:800-814

⁴¹ Eskenazi, B., A. Bradman, R. Castorina. 1999. Exposures of children to organophosphate pesticides and their potential adverse health effects. Environ. Health Perspective. v. 107 Suppl 3:409-19

⁴² Larson, SJ, Capel, PD, Majewski, MS. 1997. Pesticides in surface waters. Distribution, trends, and governing factors. Ann Arbor Press, Chelsea, MI.

⁴³ U.S.G.S. Pesticides in the Nation's Streams and Ground Water, 1992-2001Circular 1291(2006) Robert j. Gilliom, Jack E. Barbash, Charles G. Crawford, Pixie A. Hamilton, Jeffrey D. Martin, Naomi Nakagaki, Lisa H. Nowell, Jonathan C. Scott, Paul E Stackelberg, Gail P. Thelin, and David M. Wolock

⁴⁴ Landrigan, P. J., et. al. 1999. Pesticides and Inner-City Children: Exposures, Risks, and Prevention. Environ Health Perspectives Suppl. 107 (S3): 431-437

⁴⁵ Presentation by Dr. Kathy Murray, Entomologist Maine Department of Agriculture and Jeremy Caron Special Assistant to the Commissioner of Maine Department of Administrative and Financial Services.

⁴⁶ Definition of IPM Maine Statutes Title 7, Chapter 413, INTEGRATED PEST MANAGEMENT (heading: PL 1991, c.609, s2)